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Entrepreneurial passion diversity in new venture teams: An empirical examination of short- and long-term performance implications

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ABSTRACT

Empirical evidence is mounting that passion is an important part of entrepreneurship, contributing to behavior and outcomes for entrepreneurs, employees, and ventures. Yet knowledge of the performance implications of passion within new venture teams is sorely lacking. We examine how both the average level of entrepreneurial passion and the diversity of passion within new venture teams contributes to venture performance in both the short- and long-term. We test our model with multi-source, multi-wave data collected from 107 new venture teams participating in an accelerator program. Our findings indicate that average team passion is not significantly related to performance, but passion diversity, particularly intensity separation, is negatively related to performance. These findings have important implications for the literature on passion, new venture teams, and group affective diversity.

Executive summary: While existing studies have substantially improved our understanding of entrepreneurial passion, its sources, and its subsequent impact, insight into this topic remains limited in at least three ways. First, most new ventures are founded and led by teams rather than individuals, yet existing studies predominantly focus on entrepreneurial passion at the individual rather than team level. Second, while there is a prevailing assumption in existing literature that entrepreneurial passion leads to beneficial outcomes consistent with longstanding work in psychology, there is emerging evidence in entrepreneurship that passion may not always be functional and that it can even be dysfunctional. Despite this, we have limited understanding of what types of passion or when or for whom it is dysfunctional. And third, extant work on entrepreneurial passion for individuals and within teams has focused on behavioral or self-report measures of performance (e.g. Cardon and Kirk, 2015; Santos & Cardon, 2019) as well as venture survival, rather than objective team or firm performance in the short- and long-term.

In this paper, we study the influence of team passion on new venture team performance. We draw on theory concerning entrepreneurial passion within venture teams (Cardon et al., 2017) that suggests that different aspects of entrepreneurial passion within teams shape team dynamics and venture outcomes. While generally, theories of passion suggest that entrepreneurial passion is positively related to team outcomes due to the positive emotions it brings about, we find that in teams, the relationships are more complex. While the average level of passion among team members is positively related to team performance when considered alone, this effect is not

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significant when passion diversity is also considered. Diversity of passion among individual team members has a negative relationship with team performance, including diversity in the level of passion team members experience (intensity separation), as well as diversity in the object of their passion (focus variety). These negatively affect team dynamics due to conflicting emotions and identities among team members associated with passion diversity. We examine these relationships on specific team performance outcomes including evaluation of the business idea in the short-term and venture performance five years after their participation in an accelerator.

The sample used in this study includes 107 entrepreneurial teams that were part of an accelerator program in the Netherlands. Teams were evaluated on the quality of their business ideas at the end of the accelerator program and the amount of investment the team had received five years later. Our results provide no support for positive effects of average team passion on the quality of the business ideas and confirm the negative effects of passion intensity separation on the quality of the business idea and the negative effects of passion focus variety on later venture performance.

This paper makes several contributions. First, we expand the literature on passion in entrepreneurship, specifically adding to our understanding of passion within new venture teams. More specifically, we contribute to the growing body of evidence concerning potential dysfunctions of passion by uncovering a dysfunctional property of team passion diversity that uniquely manifests itself at the team level of analysis. We contribute to the literature on new venture teams by examining team composition in the form of passion diversity, and its relationship with team performance. Finally, our study extends work on the effects of entrepreneurial passion by looking at objective team performance outcomes in both the short- and long-term.

For entrepreneurs, our findings confirm the importance of affect and identity for new venture teams, and specifically our findings indicate that there is a dark side to team passion. While passion is generally positioned as a positive phenomenon, we highlight the negative outcomes that passion can have in the team context. Diversity in the amount of passion team members experience can diminish the quality of the business ideas the team is able to generate in the short-term, while diversity in the focus of team members' passion can diminish the firm's long-term performance. For investors and accelerator communities this research validates the importance of considering entrepreneurial team composition and specifically entrepreneurial passion levels and domains when investing in teams or when supporting venture building.

1. Introduction

After decades of scholarly focus on the more rational determinants of new venture performance (Mayer-Haug et al., 2013; Song et al., 2008; Unger et al., 2011), feelings and emotions have increasingly become recognized as being inherent to entrepreneurial endeavors and as key drivers of new venture success (Baron, 2008; Cardon et al., 2012; Foo et al., 2009; Hayton and Cholakova, 2012). In particular, empirical evidence is mounting that passion is an important part of the entrepreneurial process, contributing to behavior and outcomes for entrepreneurs (Clarysse and Van Boxstael, 2015; Murnieks et al., 2014), employees (Breugst et al., 2012), and ventures (Drnovsek et al., 2016). Consistent with extant literature, we define entrepreneurial passion as involving intense positive emotions experienced for entrepreneurial activities associated with roles that are important to an entrepreneur's self-identity (Cardon et al., 2009). Passion is believed to be particularly important in entrepreneurial contexts, given the effort required and challenges that need to be overcome by entrepreneurs when starting a new venture (Gielnik et al., 2015).

While existing studies have substantially improved our understanding of entrepreneurial passion, its sources, and its subsequent impact, insight into this topic remains limited in at least three ways. First, most new ventures are founded and led by teams rather than individuals (Kamm et al., 1990; Cooper et al., 1989; Klotz et al., 2014), yet existing studies that predominantly focus on entrepreneurial passion at the individual rather than team level fail to do justice to the team-based reality of many new ventures, and limit our understanding of important properties of passion that only operate and manifest themselves in team contexts, such as passion diversity (Cardon et al., 2017b). Second, while there is a prevailing assumption in existing literature that entrepreneurial passion leads to beneficial outcomes, consistent with longstanding work in psychology (e.g. Vallerand and Houlfort, 2003) there is emerging evidence in entrepreneurship that passion may not always be functional (Chen et al., 2009), and that it can even be dysfunctional, especially when it is obsessive (Adomdza and Baron, 2013; de Mol et al., 2018; Ho and Pollack, 2014). More specifically, the literature has neglected the potentially damaging effects of affective diversity and identity conflict within entrepreneurial teams, especially as they pertain to passion. Affective diversity within a team can lead to higher levels of task and relational conflict in addition to lower levels of cooperation among team members (Barsade et al., 2000), and identity conflict can be a major problem for entrepreneurial teams (Fauchart and Gruber, 2011). Interpersonal conflict hurts team outcomes (De Wit et al., 2012), and when affective conflict is based on identity-important differences among team members (such as their passions), such problems can be even worse for performance (Ensley & Hmieleski, 2005). Surprisingly, the implications of conflict of individual passions within an entrepreneurial team, which involve both affective and identity components, are unknown. Third, much of the work on entrepreneurial passion, even at the individual level of analysis, focuses on the consequences of passion on behaviors such as persistence (Cardon and

Kirk, 2015), action (Gielnik et al., 2015), or funding outcomes (e.g. Chen et al., 2009; Mitteness et al., 2012) and only a few focus on team or firm performance (see Drnovsek et al., 2016 and Santos and Cardon, 2019 for exceptions) or performance outcomes at different points in time. While the outcomes examined in prior work are important, research evidence suggests that the implications of affective diversity and identity conflict can also be profound for team and venture outcomes (e.g. O'Reilly et al., 1989; Powell and Baker, 2017), and we suggest that this should also be true for entrepreneurial passion diversity. Further, given that emerging ventures change rapidly, short-term performance outcomes may be quite distinct from long-term performance outcomes, and examination of such differential effects is needed.

Building on recent theoretical work by Cardon et al. (2017a, 2017b), as well as literatures on affective diversity (e.g. Barsade et al., 2000) and identity conflict (e.g., Fauchart and Gruber, 2011; Powell and Baker, 2014, 2017), we focus on team passion including both the average level of passion of the team and team passion diversity, which involves the dispersion (or differences) in entrepreneurial passion of individual team members within a new venture team, and how both factors influence team performance.¹ As noted by team scholars, we can best understand the impact of a team-level concept if both mean levels and dispersion levels are incorporated (De Jong and Dirks, 2012). We look at two dimensions of team passion diversity, including passion *intensity separation* – “dispersion in the level of activation of emotion experienced by team members” (how passionate am I?) – and *focus variety* – “how different members of the team are in terms of the specific roles or objects for which they feel passion” (what am I passionate about?) (Cardon et al., 2017a, 2017b: 289; Kozlowski & Klein, 2000). This is important because team members can differ not only in the extent of passion they feel (its intensity) but also in the object of that passion (its focus), and we argue that these two dimensions of team passion diversity may have different effects on performance. More specifically, we argue below that while average team passion is functional, team passion diversity in terms of intensity separation and focus variety is dysfunctional for teams. We empirically test our model using multi-source, multi-wave data obtained from 107 new venture teams participating in an accelerator program designed for high technology ventures.

Our study offers several important contributions. First, we expand the literature on passion in entrepreneurship, specifically adding to our understanding of passion within new venture teams (NVTs).² Given that teams rather than individuals found and lead the majority of new ventures (Kamm et al., 1990), understanding how passion works in teams is important. We empirically test and also extend the conceptual arguments made by Drnovsek et al. (2009) and Cardon et al. (2017a, 2017b) by considering both average team passion and team passion diversity in their relationships with early and later venture performance. In so doing, we contribute to the growing body of evidence concerning potential dysfunctions of passion (obsessive passion; Ho and Pollack, 2014) by uncovering a dysfunctional property of team passion diversity that uniquely manifests itself at the team level of analysis. We also add to the work that teases apart different dimensions and domains of entrepreneurial passion (Collewaert et al., 2016; Cardon et al., 2013) by exploring the interplay among separate aspects of passion including average team passion, intensity separation, and focus variety. To do this, we build on recent insights concerning both entrepreneurial team identity formation (Powell and Baker, 2017) and affective diversity (Barsade et al., 2000) to understand the combined effects of identity and emotional processes within NVTs.

Our second contribution is to the literature on NVTs. Interestingly, “some of the complex dynamics of entrepreneurial teams involve their affective processes, yet surprisingly little attention has been paid to the affective dynamics in entrepreneurial teams” (Drnovsek et al., 2009). Research on entrepreneurial or new venture teams primarily deals with functional background or demographic characteristics (Hellerstedt and Aldrich, 2008) and scholars have noted that “the prospect of revealing the relationship between team composition variables and team performance has yet to be exploited (Arthur et al., 2007)” (Saud Khan et al., 2014: 1058). We addressed this gap in the literature by examining team composition in the form of passion diversity, and its relationship with team performance. We pay particular attention to integrating knowledge concerning conflict dynamics involving affective diversity and identity conflict among team members, and how such dynamics likely harm team performance.

Our third contribution involves examining these effects for both near- and long-term performance in a multi-wave study. Emerging ventures change rapidly and performance outcomes at one stage of development (such as when leaving an accelerator) may be quite distinct from performance outcomes at a later stage of development (such as several years later). We examine the relationships of average team passion and team passion diversity on team performance in both the short- and long-term to uncover potentially differential effects, which we believe contributes to extant knowledge concerning entrepreneurial passion, new venture teams, and performance.

2. Theoretical background and key definitions

Three key findings concerning entrepreneurial passion from previous work are critical to the development of our model. First, passion is an important aspect of entrepreneurship (Smilor, 1997; Cardon et al., 2009). Passion is generally defined as an intense positive emotion with a meaningful identity connection (Perrewé et al., 2014; Vallerand and Houlfort, 2003). Within the entrepreneurial context, Cardon et al. (2009: 517) define passion as an intense positive emotion experienced for entrepreneurial tasks and activities that are important to the entrepreneur's self-identity. In most conceptualizations of passion, the positive feelings

¹ Note that we do not study Team Entrepreneurial Passion (TEP), which is a referent-shift construct examining what the team, as a whole, is passionate about (Santos and Cardon, 2019). Instead we examine Team Passion Diversity, which involves individual-level passions among team members aggregated to the team level of analysis. See Cardon et al. (2017a, 2017b).

² NVTs are “the group of individuals that is chiefly responsible for the strategic decision making and ongoing operations of a new venture” (Klotz et al., 2014: 288).

experienced are directed toward specific activities and become a stable feature of one's identity (Perrewé et al., 2014: 146).

Because of this, both the level of intensity of feelings and the identity centrality of the activity or object of those feelings are important dimensions of passion (Cardon et al., 2009, 2013). In addition, these feelings can be focused on one or more specific sets of entrepreneurial activities, given that individuals hold multiple identities (Mathias and Williams, 2018; Stryker and Burke, 2000). While not definitive, initial conceptual and empirical work on entrepreneurial passion has focused on three distinct and independent domains of entrepreneurial activities, those associated with inventing, founding and developing firms (Cardon et al., 2009). While inventing focuses on identifying new opportunities or creating new products or services, founding is associated with setting up and nurturing the initial venture, and developing involves helping the venture grow, such as expanding the business, hiring new employees and attracting new customers (Cardon et al., 2009, 2013). We incorporate passion for all three entrepreneurial activities, because we study new venture teams that are actively involved in the ongoing operations of the venture, as opposed to studies that examine the effects of passion during the pre-launch phase where only inventing or founding domains of passion may be relevant (Collewaert et al., 2016; Gielnik et al., 2015).

The second key finding concerning entrepreneurial passion is that beyond the individual level of analysis, passion is likely to be extremely important to the functioning of NVT's (Cardon et al., 2017a, 2017b). We use the term *new venture team* (NVT) to refer to all of the individuals that are responsible for strategic decision-making as well as regular operations of the venture (Klotz et al., 2014: 288). Both team and entrepreneurship scholars have defined teams as groups of two or more individuals (Kozlowski and Ilgen, 2006; Cooney, 2005; Kamm et al., 1990), and as such we also define NVTs as groups of two or more individuals who jointly establish a business in which they have an equity (financial) interest and who are present at the pre-start-up phase of the firm. At an early stage of development, the venture may not have any funders or other people involved the venture other than the initial team that comes together with the purpose of starting the firm. Because of this, the effectiveness of the NVT is critical, since this team controls most, if not all, of the venture's activities (Steffens et al., 2012). Recent theoretical work has suggested that both the overall passion experienced by an NVT and the passion diversity within that team, are critical aspects that influence both team processes and team performance (Cardon et al., 2017a, 2017b). While the empirical relationship between Team Entrepreneurial Passion (TEP) and performance has been tested (Santos and Cardon, 2019), empirical understanding of whether and how passion diversity, as one form of affective diversity (Barsade et al., 2000; Harrison, Price, Gavin, & Florey, 2002), impacts team processes and outcomes for NVTs is still needed.

A third key finding concerning entrepreneurial passion is that the dynamics involved in studying it at the team level of analysis require us to conceptualize and measure entrepreneurial passion differently than at the individual level of analysis (Chan, 1998; Cardon et al., 2017a, 2017b). Conceptually, our interest is no longer just in the level or extent of passion an entrepreneur has, or the focus of that passion, but also in the overlaps and diversity of passions experienced across individual team members (Drnovsek et al., 2009). Team-level constructs vary along a continuum ranging from compositional group constructs that derive their meaning from shared "experiences, attitudes, perceptions, values, cognitions, or behaviors that are held in common by members of a team" (Kozlowski & Klein, 2000: 215), such as team cohesion, to configural group constructs that derive their meaning from dispersion or variability of individual attributes among group members, such as gender diversity (Kozlowski & Klein, 2000). Because team-level phenomena comprise both mean-levels and dispersion-levels, one can only truly understand the impact of team-level concepts if both dimensions are considered (Cole et al., 2011; De Jong and Dirks, 2012).

Based on this work, we incorporate both 1) average team passion (a compositional construct) and 2) team passion diversity (a dispersion construct) in our model. *Average team passion* is defined as the average overall level of passion experienced by team members, regardless of the focus of that passion. This reflects the average level of intensity of team members' individual passions (e.g., "on average, our team members are a passionate bunch"). *Team passion diversity* is defined as "with-in group variance between individual group members and their individual passions" (Cardon et al., 2017a, 2017b: 285).

Team passion diversity includes two dimensions including 1) passion intensity separation ("dispersion in the level of activation of emotion experienced by team members") and 2) focus variety (dispersion in "the specific roles or objects for which they feel passion"). Passion intensity separation is about differences among team members in terms of how passionate they are (Theresa is very excited, but Tom is less so), while focus variety is about differences among team members in terms of what they feel passion for (Jackie loves to tinker with product improvements, while John is excited to interact with our customers). These definitions build on the work of Harrison and Klein (2007) applied to entrepreneurship by Cardon et al. (2017a, 2017b) that explains team diversity occurring in different ways, including separation and variety. Separation (here in terms of intensity of passionate feelings) reflects differences among team members in their position along a continuous attribute, ranging from low to high, such as the intensity of their felt passion. In a team with low passion separation, all NVT members are similarly high in their level of passionate feelings, while in a team with high passion separation, some NVT members experience a high level of passionate feelings, while others experience a low level of such feelings. Variety, in contrast, reflects differences among team members in categorical attributes, such as gender or functional background (Harrison and Klein, 2007), or here in terms of the particular set of activities that is the focus of feelings of passion. In our case, focus variety would be high when some team members are highly passionate for inventing and founding and not very passionate for developing while others are highly passionate for inventing and developing but not very passionate for founding, as examples. Focus variety would be low when all team members experience passion for the same domain of entrepreneurship, such as founding.

3. Team passion diversity and performance

We first argue that the overall level of passion within an NVT will enhance performance (Cardon et al., 2017a, 2017b), based on two separate lines of reasoning. First, many studies of teams use the aggregation of individual characteristics across team members under the assumption that desirable aspects of individuals provide the team with resources that are beneficial for team performance (Stewart, 2006; Jin et al., 2017). Such studies use averaged individual scores to find effects of the team on organizational performance (Jin et al., 2017). This suggests that positive relationships between entrepreneurial passion of individuals and performance can be accumulated within a team such that the functional aspects of passion for individual entrepreneurs may also be functional at the team level of analysis. This notion that parallel relationships exist between parallel constructs at different levels of analysis is called homology (Chen et al., 2005). Passion at the individual level of analysis has several cognitive and motivational consequences (Cardon et al., 2009). For example, individual entrepreneurial passion has been empirically found to enhance performance in terms of functional individual behaviors such as persistence (Cardon and Kirk, 2015), tenacity (Murnieks et al., 2016), and grit (Mueller et al., 2017), as well as in terms of venture growth (Drnovsek et al., 2016). It follows that the average level of passion within an NVT would also enhance performance (Cardon et al., 2017a, 2017b).

Second, higher levels of average team passion may have effects over and above this accumulation of individual-level effects. Research on teams demonstrates that emotions provide important information about how well the team is doing and therefore where they need to expend their energies going forward (Fredrickson, 2013). The overall level of positive affect within a team can also reduce cognitive conflict and improve cooperation among members, leading to better task performance (George, 1996). In addition, higher positive team emotions may help increase resources for the firm by leading potential investors or employees to perceive greater competence or persuasiveness of the team (Baron, 2008; Mitteness et al., 2012; Breugst et al., 2012). Based on this evidence concerning individual entrepreneurial passion and team affect, we echo prior theoretical claims that overall team passion will improve NVT performance (Cardon et al., 2017a, 2017b). As such, we predict:

Hypothesis 1. *Average team passion is positively related to new venture performance.*

In contrast to the positive effect proposed for average team passion, we expect that team passion diversity will influence team performance negatively and that this effect will occur primarily due to passion intensity separation. While a recent meta-analysis found support for heterogeneity of team members' characteristics positively relating to venture outcomes, this was due to the broader information that is assumed to come with more diverse top management team members in terms of their demographic characteristics such as functional areas of their work experience (Jin et al., 2017). While we acknowledge the potential benefits of heterogeneity in prior experiences among team members in terms of the different sources of information, skills, and resources such experience brings (e.g. Finkelstein and Hambrick, 1996), we focus on heterogeneity of affect within the team which is likely to be detrimental.

Affective diversity is a critical aspect of a group's affective experience (e.g. Barsade et al., 2000; Barsade and Gibson, 2012), and includes the variation or heterogeneity in individual affective experiences. Several previous studies have found evidence that affective diversity within teams, especially diversity in terms of positive affect, leads to substantially worse team performance (Barsade et al., 2000; Kaplan et al., 2013). This effect can occur for several reasons. Based on research on social categorization theory and similarity-attraction effects, we know that individuals tend to avoid working together or communicating with people when they perceive dissimilarity between themselves and others (Byrne, 1961), which can lead to less integration of tasks and lower perceived group cooperativeness, which decreases perceived and objective team performance (Barsade et al., 2000). This can also lead to team members classifying others as either similar or dissimilar from themselves where such categorizations lead to interpersonal conflict that weakens team performance (Van Knippenberg and Schippers, 2007). In contrast, teams that are more affectively similar tend to experience fewer negative emotions and work more quickly and with more focus than teams that are affectively dissimilar (Kaplan et al., 2013). Affective diversity can also influence decision-making within teams (e.g. Barsade and Gibson, 1998; Williams and O'Reilly III, 1998), where affective similarity among team members leads to participative decision-making and affective diversity leads to more autocratic decision-making (Barsade et al., 2000). Overall, affective diversity can lead to higher levels of task conflict and relational conflict in addition to lower levels of cooperation among team members (Barsade et al., 2000). Autocratic decision-making approaches and higher conflict levels within NVTs stemming from passion diversity in the form of intensity separation are likely to hinder their effectiveness.

While we know of very little empirical data concerning this phenomenon, diversity in entrepreneurial passion has been theorized to lead to lower team performance by Drnovsek et al. (2009). These authors suggest that "mixed passion teams" (which we label high intensity separation, consistent with Cardon et al., 2017a, 2017b) where some team members feel high passion but others experience no or only low passion, regardless of the focus of that passion, will experience low social cohesion, moderate cognitive conflict, and high affective conflict. While Drnovsek et al. (2009) suggest these teams will be the most difficult to manage, we go further to argue that teams with high intensity separation will also be the teams for which team performance will be the lowest. Indeed, Uy et al. (2017) found that high intensity separation in passion for founding had a negative impact on idea implementation for NVTs involved in an incubator. Similar findings, although not specifically related to passion diversity, reveal that high levels of affective conflict in entrepreneurial teams may worsen venture performance (Ensley et al., 2002; Ensley and Pearce, 2001). Hence:

Hypothesis 2. *Team passion diversity in terms of intensity separation is negatively related to new venture performance.*

Passion focus variety in NVTs may also be problematic, where team members experience passion for activities associated with different role identities (inventing, founding, developing), as this may be a source of identity conflict (e.g. Ashforth and Mael, 1989; Fauchart and Gruber, 2011; Powell and Baker, 2017). As we noted above, interpersonal conflict stemming from affective diversity is

problematic for team outcomes (De Wit et al., 2012) and emotional conflicts in particular among top managers likely promote negative feelings as well as hinder interactions and camaraderie within the management team (Jehn, 1995). More specifically pertaining to focus variety, when affective conflict is chronic, which would be more likely when it is based on identity-important distinctions in team members' passion foci, problems associated with interpersonal conflict can be even worse for performance (Ensley & Hmieleski, 2005). Extant work notes that “divergent identities can be a major source of conflict” within entrepreneurial teams (Fauchart and Gruber, 2011: p. 949). When identities get involved, seemingly minor task conflict concerning organizing a venture can turn into very large interpersonal conflicts concerning what it means to be part of the organization and the in-group (Powell and Baker, 2017).

Moreover, diversity in the focus of team members' passions likely leads to diversity in strategic focus and preferences to invest further resources (time, effort, funds) into different aspects of the business. Such diversity in strategic focus can harm performance of the team (Samba et al., 2018). Even strategies intended to address focus variety within a team such as sharing decision-making equally, likely perpetuate the problem. Shared decision-making strategies may decrease status conflict since everyone can fairly contribute to the decisions of the team, yet might also increase relationship conflict by “muddying the group's hierarchy and causing more members to quarrel over who should perform what role” (Carton and Tewfik, 2016: p. 1126).

In short, identity conflict related to passion focus variety can lead to team members pursuing different goals, motivated by their own individual passions, rather than focusing on the shared goals of the team (Earley & Mosakowski, 2000). For example, Monitor101 is a company that failed for many reasons, according to its founders, but one of them was having “two heads” with different perspectives, where one founder focused on the technology and the other on the business side of the firm. Founder Roger Ehrenberg said, “The problem was... that when it came time to make hard decisions the two-headed structure really didn't work” (Ehrenberg, 2008). Working through such conflict within the team takes up valuable time and attention due to the need to reconcile competing perspectives and viewpoints because of the affective diversity (O'Reilly, et al., 1989), which likely takes attention away from the venture and detracts from its performance. Based on this, we suggest:

Hypothesis 3. *Team passion diversity in terms of focus variety is negatively related to new venture performance.*

4. Method

4.1. Research setting and sample

Our study was conducted among 107 new venture teams participating in an accelerator program designed for high technology ventures in the Netherlands, which we will call Venture Forward. Venture Forward is a cohort-based, 10-month program, which includes mentorship and educational components and which culminates in a public pitch event or demo day. The primary value for new venture teams to participate in the program is derived from mentoring, network connections and brand recognition. Venture Forward was not entitled to venture equity in exchange for participation in the program. Venture Forward was the first and most esteemed accelerator program of the Netherlands, attracting high quality and committed entrepreneurs. Moreover, Venture Forwards' mentors and competition judges all represented “gatekeepers” of resources, being experienced entrepreneurs, business angels, bankers, and venture capitalists. As Foo et al. (2005, p. 13) note, “convincing gatekeepers of the viability of an idea is an important step to secure resources, including capital, access to potential suppliers, advice and mentorship (Birley, 1986)”.

This research context and sample provided us with several benefits. First, many of the activities to which entrepreneurial passion pertains – e.g., founding, inventing, and developing (Cardon et al., 2009) – are by definition the most relevant in the early stages of new ventures, making our new venture team sample ideally suited for examining the impact of all three domains of entrepreneurial passion (see also Santos and Cardon, 2019). Second, the accelerator context allowed us to obtain data on new venture performance, which is otherwise inherently difficult with regard to early stage new ventures (Chandler and Hanks, 1993; Foo et al., 2006). The incubation and acceleration effect strongly influences the innovation of new ventures (Sedita et al., 2018). Finally, the fact that the teams participated in the same program and were all active in the same sector helped minimize contextual ‘noise’ that may otherwise distort our results (Cheng et al., 2012).

Selection of participating teams in Venture Forward was based on the quality of a written application, using basic evaluation metrics; including 1) were teams working on the development of a product or service in the technology sector, 2) did the entrepreneurs spend > 2 days a week on the start-up, and 3) had the teams been working on their product or service for < 5 years. More specifically, as the term “technology-sector” is still broad, Venture Forward welcomed start-ups from the health and biotech sector, fintech sector, education tech sector, professional online services sector, and high-tech sector (i.e., logistical tech and energy tech).

We carefully checked to ensure that passion was not a criterion for the inclusion of teams in Venture Forward, which would have otherwise caused range restriction in our independent variable. For example, we verified that applications did not include words or expressions conveying entrepreneurs' passion, such as “we love what we do”, “we are passionate”, or other positive feelings. Also, there was no video pitch involved in the application that could include signs of passion. We contacted all new venture teams accepted by Venture Forward and verified whether they met our inclusion criteria: all the entrepreneurs that applied for the program had to be involved in the strategic decision-making and ongoing operations of their new venture, and were considered to be part of the new venture team only if they formally indicated as such during the program's application process.

Our study has three measurement moments; T1, where we measured our independent and control variables, T2, 11 months later where we collected our early venture performance measure, and T3, 5 years later where we collected our later venture performance measure. Within the first month after a team being accepted into Venture Forward (Time 1), an online survey was sent out to all team

members that included measures for our independent and control variables. After several reminders, the response rate for the survey was 40%, representing an initial sample of 485 individual responses. In order to be able to calculate passion separation and variety, we included responses only if we received complete responses of two or more team members. This resulted in a final sample of 251 individuals residing in 107 teams; the average team size was 2.4 and the standard deviation was 0.61. We tested non-response bias by comparing the available characteristics (i.e. gender, age, specific industry, and team size) of respondents who returned completed surveys and non-respondents. Results showed no significant differences between entrepreneurs that did and did not return the survey.

Of the individual team members, 71% were male, with an average age of 34. The average education level was a Masters' Degree, and 43% of the participants had prior start-up experience. These figures closely mirror the demographic profile of the new venture teams participating in accelerator programs (Seibel, 2015), according to statistics provided by Venture Forward.

4.2. Measures

4.2.1. Entrepreneurial passion

We used the 13-item scale developed by Cardon et al. (2013) to measure individual team members' entrepreneurial passion. This scale consists of three multi-item subscales that each capture positive feelings regarding one of three entrepreneurial roles (inventing, developing and founding) as well as one identity centrality item for each role. Example items for intensity of positive feelings for inventing, founding, and developing are: "Searching for new ideas for product/services to offer is enjoyable to me", "Establishing a new company excites me", and "Assembling the right people to work for my business is exciting". The items for identity centrality for inventing, founding, and developing are: "Inventing new solutions to problems is an important part of who I am", "Being the founder of a business is an important part of who I am", and "Nurturing and growing companies is an important part of who I am". Respondents indicated their level of agreement with these items on a five-point Likert scale (1 = "strongly disagree", 5 = "strongly agree"). The Cronbach's Alpha's for the positive feelings for inventing, founding, and developing subscales were 0.71, 0.76, and 0.74, respectively. Consistent with Cardon et al.'s (2013) guidelines, scores for each of the passion domains were obtained by averaging the feelings items and multiplying this by the identity centrality item.

4.2.2. Average team passion

Average team passion reflects the average level of passion (across the 3 domains) among team members. To justify aggregation to the team level, group-size- corrected intraclass correlations (Bliese and Halverson, 1998) and measurement error corrected interrater agreements were calculated. These aggregation statistics exceeded generally accepted cut-off points (mean $r_{WG} = 0.80$, ICC [2] = 0.68, ICC [1] = 0.18, $F = 1.58$, $p < .01$). We therefore proceeded to average scores across the three domains for each individual respondent, and then averaged the scores across team members. To ensure appropriate model fit we made CFA comparisons of a model with a single common factor, a model with three independent factors for the three types of passion, a model with three correlated factors, and a model with a higher order factor. The results demonstrate a three-factor model with strong model fit (CFI 0.95, TLI 0.93, IFI 0.95 and RMSEA 0.06) and a higher order model with strong model fit (CFI 0.95, TLI 0.94, IFI 0.95 and RMSEA 0.06).

4.2.3. Team passion intensity separation

Consistent with best practice recommendations (Harrison and Klein, 2007; Roberson et al., 2007), we calculated the within-team standard deviation across team members' entrepreneurial passion scores (averaged across all 3 domains) to capture intensity separation at the team level. Specifically, we used Biemann and Kearney's (2010) unbiased standard deviation estimator (SD_N), which corrects for differences in group size. The SD_N is calculated as:

$$SD_N = \sqrt{\frac{\sum_{i=1}^N (M_i - M_{ij})^2}{q}},$$

where N is the number of team members, M_i is team member's scale score, M_{ij} is the group mean, and q is the q statistic as specified by Cureton (see Biemann and Kearney, 2010). Our choice of using the SD as our operationalization of team passion diversity (as opposed to other metrics) is based on best practice recommendations for capturing within-group dispersion by Roberson et al. (2007) and separation by Harrison and Klein (2007). It is also consistent with the way researchers have operationalized within-team dispersion in other emergent states, such as satisfaction (Dineen et al., 2007), justice (Roberson & Williamson, 2012), psychological safety (Koopmann et al., 2016), and Leader-Member-Exchange (Liao et al., 2010). Equally important, this approach aligns with Cardon et al. (2017a, 2017b)'s conceptualization of passion separation.

4.2.4. Team passion focus variety

Team passion focus variety involves differences in the focus or object of team members' feelings of passion. We calculated focus variety according to the instructions of Harrison and Klein (2007) for calculating variety, namely by using Blau's index (1967). The Blau index draws on the theory of qualitative differences and is the most commonly employed measure for diversity as variety (e.g., Bunderson and Sutcliffe, 2002).

To gain enough depth in the passion focus variety measure, we first performed a cluster analysis in SPSS of individual team members' passion (i.e., passion for inventing, developing and founding) to analyze what patterns exist for the various entrepreneurs. Prominent scholars such as Powell & Baker (2014, p. 2392) acknowledge that there is no clear way to measure the mix of social

identities of entrepreneurs. It is entirely plausible that individuals hold more than one identity as important (Powell and Baker, 2014), even concerning the foci of one's passion (Cardon et al., 2009). A cluster analysis approach allows for different combinations of hybrid identities between passion for the three domains, rather than presuming that each person would adhere to just one dominant passion focus. Using clusters to calculate focus variety allows for multiple domains of passion to be important to the same person, and captures the variance in passion focus.

As a result of this cluster analysis for entrepreneurial passion, we distinguished seven k clusters, or patterns of preferred passion domains for individual entrepreneurs. For example, a team member would be coded in the first cluster if he or she scored high on passion for inventing, passion for developing and passion for founding. The third cluster captured entrepreneurs that scored high on passion for inventing, and low on both passion for developing and passion for founding. For a comprehensive list of the seven clusters and the associated passion domains see Table 1.

We then categorized team members based on the calculated clusters and used this categorization as inputs for the Blau Index. We calculated the Blau index using the following:

$$\text{Blau Index} = \sum p_k^2$$

where p is the proportion of unit members in the k th category. Values of Blau's index can range from zero to $(K-1)/K$, and in our case, reflect how many clusters occur within a NVT, as well as how evenly team members are distributed among those clusters. Minimum passion focus variety occurs when all team members are passionate for the same role, for example, inventing, and therefore fall into the same cluster. Maximum focus variety occurs when each member within a NVT experiences a separate configuration of passion and fall into different clusters reflecting different patterns of their individual passions. For example, if in a team of three all team members have a different configuration concerning the strength of their passion for each domain, maximum passion focus variety occurs.

4.2.5. Quality of the business idea

Early venture performance metrics are hard to measure, as ventures in their earliest stage of development often do not have any revenue and sales indicators yet. Therefore, a common performance indicator for seed or early-stage investors is the quality of the pitch or business plan (Foo et al., 2005). For ventures that only have a beta version or minimal viable product, the growth prospects of the venture and quality of the business idea are often the only metrics that count as performance and are the basis for valuation of the company. Previous work argues that business plans and pitches are solid indicators of team effectiveness and performance. For example, Foo et al. (2005, p. 4), note that the evaluation of business ideas is extremely helpful: "Business ideas are by themselves plentiful; unless the team's idea is positively evaluated, it might not be able to attract funding or obtain access to potential suppliers and customers".

Based on this precedent and to minimize common method bias (Podsakoff et al., 2012), data regarding early venture performance were obtained through investor ratings of the new venture teams' business plan at the end of the accelerator program, about nine months after the team member survey was administered (Time 2). The judges were selected based on their experience in evaluating business plans and involvement in new venture activities. In order to participate in the final presentations, new venture teams were required to send in their business plan a few weeks in advance. These written business plans (not presentations) were evaluated anonymously by a distinguished group of 41 experienced entrepreneurs, angel investors and venture capitalists, who were uninvolved in the day-to-day operations of the participating teams. These investors evaluated the written business plans on five dimensions: innovation in products and services, customer satisfaction, cost control and expected sales growth. The criteria were consistent with what professional venture capitalists in the U.S. use to rate business ideas (e.g. Howard et al., 1994). Each dimension was measured using a multi-item scale. Sample items are "Does this product, service, or technology truly fulfill a customer need?", "Has this team distinguished and depicted its potential customer groups and specific needs?", and "Are the price, costs, and expected revenues depicted in the business plan realistic and appealing?" These items were rated on a five-point scale, ranging from "not applicable to this team at all" (1) to "very much applicable to this team" (5). Note that performance scores were based on the evaluation of written business plans only, rather than on the quality or displayed passion of team members during business plan presentations (e.g., Chen et al., 2009).

Acknowledging that experts can differ in how they use scales in performance evaluations, we performed a Levene's test for equality of error variances. The test confirmed that there was no between subject effects and hence no significant difference in the way judges evaluated the teams' written business plans ($F = 1.078$, $p > .05$), confirming that it was appropriate to use the performance scores as collected.

Table 1

Overview of cluster analysis for the three passion domains.

	1	2	3	4	5	6	7
Passion for inventing	High	Average	High	Low	Average	Average	High
Passion for developing	High	Average	Low	Low	Average	High	Average
Passion for founding	High	Average	Low	Low	Low	High	Average

4.2.6. Later venture performance

We collected another wave of performance data 5 years after participation in Venture Forward (Time 3). We used the amount of funding that ventures received as a proxy for venture performance consistent with a meta-analysis of 36,567 firms demonstrating that the size of investment that ventures receive is strongly related to their future performance (Rosenbusch, Brinckmann, & Bausch, 2011). In addition, start-ups that fail to get funded in most cases don't survive as they don't have the capital to scale (Rosenbusch, et al., 2011). Hence, the amount and source of funding received represents a solid proxy for later performance of the companies in our study. We collected this data from the Dutch Chamber of Commerce and Crunchbase, a database that registers the amount of funding that startups receive. We categorized performance as follows: 1) venture received no funding; 2) venture received personal funding; 3) venture received angel investments; 4) venture received venture capital investment of EUR < 100.000; 5) venture received venture capital investment EUR > 100.000 and < 1.000.000; 6) venture received venture capital investment of EUR > 1.000.000.

4.2.7. Controls

We initially controlled for a wide variety of variables such as prior start-up experience, shared team experience, gender, age, industry, B2B versus B2C orientation, team size (all at T1) and performance at T2 (in our analyses of T3 performance) in our analyses. Given that the results showed that none of these variables were a significant predictor of venture performance we removed them from our analyses, consistent with best practice recommendations regarding the use of control variables (Bernerth and Aguinis, 2015). There has been a lot of debate about the use of control variables in the literature (Aguinis and Vandenberg, 2014; Atinc et al., 2012; Carlson and Wu, 2012; Spector and Brannick, 2011) and the latest recommendation regarding control variables has been: if they don't correlate with your DV, leave them out ("when in doubt, leave them out"). We did retain the control variable of venture age in our analyses, where venture age reflects the number of years the start-up has been in business.

4.3. Potential for endogeneity

Our sample of entrepreneurial teams all participated in an accelerator program and hence a concern is whether they were randomly selected or if there are endogeneity problems in our data. Therefore, we used the two-stage Heckman method (Heckman, 1979) to control for potential bias. Following this procedure, as demonstrated by Delmar and Shane (2003), Batjargal et al. (2013) and Pryor et al. (2017), we calculated a new control variable, referred to as the inverse Mills ratio, from the results of a first-stage probit model predicting the outcome. In the first stage of the procedure, we calculated the Mills ratio (λ) with the entrepreneurial teams included in our study and additional data from other entrepreneurial teams that were not included in our sample and were not in the same accelerator. Therefore, we collected additional data from other entrepreneurial teams with less than three years of operations and a working minimum viable product (these are the same conditions as those to be accepted in the accelerator). These entrepreneurial teams were contacted through a list of a Dutch venture capital office who were signaled as entrepreneurs by the investment managers. We sent an email with a link to an online survey including initial selection questions validating the criteria for participation (e.g. "Did you start your own business in the last three years?"; "Did you start this business with other people who are part of the founding team?"; "Have you been enrolled in an accelerator program with your business?"). A total of 50 entrepreneurs were contacted and 30 qualified to participate. A final sample of 14 complete entrepreneurial teams filled out the survey corresponding to a response rate of 28%. The final sample for the Heckman method thus included 14 entrepreneurial teams (39 individuals), corresponding to 15% of the sample size of our study. Other studies (Morrow Jr et al., 2007; Pryor et al., 2017) used a sample size for computing the inverse Mills ratio of about 10% of the study sample.

As a next step, we dummy-coded the entrepreneurial teams based on whether they were included in the accelerator or not (1 = included; 0 = not included). We used three independent variables – gender, prior startup experience, and prior shared team experience (i.e., the number of years team members worked together before starting their current venture) – as independent variables in the probit model since we had these data for all the entrepreneurial teams and these variables were not included in the primary regression models. Following the second stage of the Heckman procedure, we then calculated the inverse Mills ratio of each entrepreneurial team from this regression. As a final step, we included the inverse Mills ratio as a control variable in our primary regression models.

Table 2
Descriptive and summary statistics.

		Mean	SD	1	2	3	4	5	6
1	Venture age	2.606	1.090						
2	Team size	2.345	0.606	−0.039					
3	Quality of the business idea (T2)	3.541	0.897	0.156	0.017				
4	Later venture performance (T3)	2.561	1.784	0.208*	0.076	0.161			
5	Average team passion (T1)	16.556	4.397	−0.099	−0.157	0.161	−0.077		
6	Passion separation (T1)	0.783	0.397	0.032	−0.070	−0.321**	−0.079	−0.462**	
7	Passion variety (T1)	0.845	0.368	−0.008	−0.018	−0.117	−0.158	−0.147	0.420**

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

Table 3

Regression results for new venture performance (includes entrepreneurial passion IC & IPF of all three domains).

Variables	Quality of the business idea (T2)						Later venture performance (T3)					
	Model 1			Model 2			Model 3			Model 4		
	β	SE	p.	β	SE	p.	β	SE	p.	β	SE	p.
Venture age	0.169	0.079	.078	0.189	0.076	.076	0.216	0.154	.026	0.211	0.152	.028
Inverse mills	0.934	0.000	.353	0.117	0.000	.218	−0.132	0.000	.168	−0.124	0.000	.190
Average passion	0.200	0.019	.038	0.048	0.021	.670	−0.029	0.038	.760	−0.056	0.037	.560
Passion intensity separation				−0.360	0.273	.002				−0.106	0.484	.105
Passion focus variety				0.023	0.241	.880				−0.192	0.445	.045
R ²	0.071			0.175			0.062			0.103		
Adjusted R ²	0.044			0.123			0.041			0.061		
ΔR^2				0.08						0.02		
F	2.651*			4.043**			2.274			2.791*		
Df	104			102			104			102		

5. Results

We tested our hypotheses using OLS regression. [Table 2](#) displays the descriptive statistics and correlations among study variables, and [Table 3](#) displays the results for all hypotheses, tested for both T2 (quality of the business idea) and T3 (received investment) venture performance. [Hypothesis 1](#) predicted a positive effect of average team passion on venture performance. This hypothesis is initially supported for the data collected at T2 (Model 1: $\beta = 0.200$, $p = .038$) confirming a positive effect of average team passion on quality of the business idea. However, although the effect of average team passion is significant in the model without passion intensity separation, this effect is no longer significant when passion intensity separation is added (Model 2: $\beta = 0.048$). Hence, average team passion is not a significant predictor of quality of the business idea. We did not find a significant relationship between average team passion and later venture performance (Model 4: $\beta = -0.029$). Consistent with [Hypothesis 2](#), passion intensity separation shows a significant negative relationship with quality of the business idea (Model 2: $\beta = -0.360$, $p = .002$), but not with later venture performance (Model 4: $\beta = -0.106$). Acknowledging that mean and dispersion-levels of team constructs can interact in predicting team outcomes ([De Jong and Dirks, 2012](#)), we also tested for an interaction between average team passion and passion intensity separation. However, our results did not yield a significant interaction between the two variables, leading us to conclude that in our case the two team-level concepts influence venture performance independently, rather than jointly.

Next, we tested [Hypothesis 3](#) for the effects of passion focus variety on venture performance. Our results did not show significant effects of passion focus variety on quality of the business idea (Model 2: $\beta = 0.023$), but we did find a significant negative effect of passion focus variety on later venture performance (Model 4: $\beta = -0.192$, $p = .045$). We also tested for an interaction between average team passion and passion focus variety. Again our results did not yield a significant interaction between the two variables, leading us to conclude that these two team-level concepts influence venture performance in isolation.

5.1. Analysis of passion intensity separation within the passion domains

Acknowledging that there are three separate domains of entrepreneurial passion which can each have different effects on performance outcomes ([Breugst et al., 2012](#); [Cardon et al., 2009](#); [Cardon and Kirk, 2015](#)), we disaggregated our passion diversity measures, and re-analyzed the effects of passion intensity separation for each of the three domains of passion to further test our hypotheses. For each analysis, we included passion intensity separation for one particular role (e.g. inventing) as well as average team passion for that role. Precedent for this approach of focusing on only one role at a time has been established in prior work (e.g., [Drnovsek et al., 2016](#); [Stenholm and Renko, 2016](#); [Collewaert et al., 2016](#); [Uy et al., 2017](#)). [Table 4](#) shows the summary statistics and correlation matrix for passion for developing, inventing, and founding separately.

[Table 5](#) indicates that average team passion for developing does not have a significant positive effect on quality of the business idea (Model 1: $\beta = 0.220$), but that intensity separation in passion for developing is significantly and negatively related to quality of the business idea (Model 2: $\beta = -0.363$, $p = .000$), providing support for [Hypothesis 2](#). Repeating this analysis for later venture performance, we find support for the negative effect of intensity separation in passion for developing and later performance (Model 4: $\beta = -0.152$, $p = .029$).

Regarding passion for inventing, [Table 6](#) reveals that average team passion for inventing has a significant positive effect on performance (Model 1: $\beta = 0.220$, $p = .022$), but that effect becomes marginally significant when intensity separation is added to the model (Model 2: $\beta = 0.179$, $p = .065$). Further, intensity separation in passion for inventing has a negative, marginally significant effect on quality of the business idea (Model 2: $\beta = -0.185$, $p = .056$). Surprisingly, none of our hypotheses are supported for later venture performance (Models 3 and 4).

As demonstrated in [Table 7](#), the direct effect of average team passion for founding is positive but not significant (Model 1: $\beta = 0.118$), and the direct effect of intensity separation in passion for founding on quality of the business idea is negative and

Table 4
Descriptive and summary statistics for each passion role.

	Mean	SD	1	2	3	4	5	6	7	8	9
1 Venture age	2.606	1.090									
2 Team size	2.345	0.606	−0.039								
3 Quality of the business idea (T2)	3.541	0.897	0.156	0.017							
4 Later venture performance (T3)	2.561	1.784	0.208	0.076	0.161						
5 Average team passion for inventing (T1)	17.937	5.07	−0.078	−0.028	0.201*	−0.060					
6 Average team passion for developing (T1)	14.949	5.54	−0.094	−0.115	0.118	−0.082	0.426**				
7 Average team passion for founding (T1)	16.363	5.63	−0.070	−0.214*	0.079	−0.047	0.375**	0.648**			
8 Inventing passion intensity separation (T1)	0.960	0.682	0.015	−0.129	−0.185	−0.065	−0.220*	−0.275**	−0.235*		
9 Developing passion intensity separation (T1)	0.716	0.372	−0.059	0.039	−0.328**	−0.063	−0.205*	−0.364**	−0.435**	0.477**	
10 Founding passion intensity separation (T1)	0.637	0.314	−0.059	0.160	−0.246**	−0.006	−0.212*	−0.337**	−0.414**	0.472**	0.540**

* Correlation is significant at the 0.05 level (2-tailed).

** Correlation is significant at the 0.01 level (2-tailed).

Table 5

Regression results for passion for developing and new venture performance.

Variables	Quality of the business idea (T2)						Later venture performance (T3)					
	Model 1			Model 2			Model 3			Model 4		
	β	SE	<i>p.</i>	β	SE	<i>p.</i>	β	SE	<i>p.</i>	β	SE	<i>p.</i>
Venture age	0.166	0.080	.088	0.132	0.076	.148	0.220	0.104	.025	0.225	0.106	.001
Inverse mills	0.100	0.000	.453	0.074	0.000	.416	−0.166	0.000	.009	−0.169	0.000	.020
Average passion	0.220	0.016	.109	0.031	0.016	.749	−0.039	0.030	.537	−0.130	0.032	.059
Passion intensity separation				−0.363	0.237	.000				−0.152	0.334	.029
R^2	0.055			0.171			0.061			0.100		
Adjusted R^2	0.028			0.139			0.034			0.084		
ΔR^2				0.111						0.050		
<i>F</i>	2.025			5.305**			2.241 ⁺			6.244**		
<i>Df</i>	104			103			104			103		

Table 6

Regression results for passion for inventing and new venture performance.

Variables	Quality of the business idea (T2)						Later venture performance (T3)					
	Model 1			Model 2			Model 3			Model 4		
	β	SE	<i>p.</i>	β	SE	<i>p.</i>	β	SE	<i>p.</i>	β	SE	<i>p.</i>
Venture age	0.166	0.079	.083	0.164	0.078	.081	0.214	0.153	.027	0.213	0.153	.027
Inverse mills	0.100	0.000	.294	0.113	0.000	.232	−0.136	0.000	.156	−0.127	0.000	.184
Average passion	0.220	0.017	.022	0.179	0.017	.065	−0.064	0.032	.501	−0.093	0.033	.340
Passion intensity separation				−0.185	0.127	.056				−0.130	0.249	.184
R^2	0.079			0.112			0.065			0.081		
Adjusted R^2	0.053			0.077			0.031			0.045		
ΔR^2				0.024						0.014		
<i>F</i>	2.987*			3.234**			2.399			2.260		
<i>Df</i>	104			103			104			103		

Table 7

Regression results for passion for founding and new venture performance.

Variables	Quality of the business idea (T2)						Later venture performance (T3)					
	Model 1			Model 2			Model 3			Model 4		
	β	SE	<i>p.</i>	β	SE	<i>p.</i>	β	SE	<i>p.</i>	β	SE	<i>p.</i>
Venture age	0.158	0.080	.105	0.163	0.078	.084	0.219	0.154	.024	0.219	0.155	.031
Inverse mills	0.091	0.000	.346	0.131	0.000	.169	−0.132	0.000	.171	−0.130	0.000	.169
Average passion	0.118	0.015	.222	0.004	0.016	.969	−0.001	0.030	.988	−0.006	0.033	.948
Passion intensity separation				−0.284	0.292	.007				−0.012	0.577	.750
R^2	0.045			0.111			0.061			0.044		
Adjusted R^2	0.018			0.076			0.034			0.017		
ΔR^2				0.058						0.17		
<i>F</i>	1.645			3.210**			2.238			3.210		
<i>Df</i>	104			103			104			103		

significant (Model 2: $\beta = -0.284$, $p = .007$). None of the hypotheses were supported for the relationships between passion for founding and later venture performance (Models 3 and 4).

Together these analyses suggest that while within the domain of passion for inventing average team passion has a marginally positive impact on quality of the business idea, the overall negative impact of passion intensity separation on quality of the business idea found across passion domains is predominantly driven by diversity in passion for developing and founding.

6. Discussion

In this paper, we sought to understand how team passion diversity, including differences in the intensity and focus of new venture team members' individual passions, along with teams' overall average passion, influenced venture performance. Our findings indicate that overall average team passion has no significant effect on the quality of the business idea, but diversity in terms of intensity

separation, particularly in passion for developing the firm and passion for founding, is detrimental to team performance as evaluated by others. Our study has important implications for work on entrepreneurial passion, new venture teams, group affect and identity.

6.1. Implications for passion literature

As one of the first empirical studies to extend the phenomenon of entrepreneurial passion to the team level of analysis our results underline the importance of Cardon et al.'s (2017a, 2017b) distinction between different types of passion at the team level of analysis (see also Santos and Cardon, 2019; Uy et al., 2015). Our findings suggest that average team passion and passion diversity are not only *conceptually* distinct, in that they capture different yet equally important properties of team-level passion (i.e., mean versus dispersion levels of passion), but also *functionally* distinct, in the sense of playing different causal roles in our model and exerting opposing effects in relation to team outcomes. Our study also shows that team-level manifestations of entrepreneurial passion are often simultaneously characterized by both shared (average) levels and dispersion in levels and foci of passion among team members. Our results suggest that examining these properties of passion together increases our understanding of the way passion operates in teams beyond what we can learn by examining them independently. In particular, we find it surprising that despite a common assumption that higher average levels of passion would improve team performance, this was not the case in our data. Instead, the effects of average team passion become non-significant when passion diversity is added to the analysis. Within entrepreneurial teams, it appears that passion diversity, not the average level of passion within the team, is what drives performance, and in a dysfunctional way. This study provides an important step forward in building evidence concerning the exact nature of passion at the team level of analysis and its relationship with important outcomes.

Although not the focus of our study, and therefore not something we formed hypotheses around, our results indicate that different aspects of team passion have different effects over time. Average team passion has no significant effects on the quality of the business idea or on later venture performance. Moreover, while passion intensity separation has a significant negative influence on quality of the business idea, only intensity separation in passion for developing has a significant effect on later venture performance. These results suggest that team passion, especially in terms of diversity of the level of passion experienced, is quite impactful early in a venture's development, but that importance wanes over time. Early in the team's development, affective diversity can lead to higher levels of conflict in terms of both tasks and relationships (Barsade et al., 2000) and working through such conflict typically takes valuable attention (O'Reilly et al., 1989) away from key tasks. In addition, when team members have not yet solidified their individual roles or identities in the team, divergent identities can create substantial conflict (Fauchart and Gruber, 2011). As such, teams likely face the majority of the potential for conflict and disruption early in their formation processes such that sharing a high level of passion is an important aspect of working through those conflicts and establishing team cohesion; yet once organizational routines and goals have been established, the cohesion brought about by similar emotions and identity configurations become less important than other factors in driving venture survival and funding.

Interestingly, we find that passion focus variety has no significant effect on quality of the business idea, but instead has a strong negative effect on new venture performance measured after five years. It is possible that at the earliest stages of development teams are more interested in having members that are all passionate about some aspect of entrepreneurship without being concerned about the specific focus of that passion, yet once the firm starts growing, the potential for disagreement over taking the business in different directions becomes more apparent and more problematic. Without agreement on the focus of passion, disagreement over business goals and plans for achieving them may become more detrimental to team cohesion and performance. Indeed, Powell and Baker (2017) studied several nascent ventures with initial members that exhibited the ability to get along and make progress together for some time before divergent identities among team members were fully constructed and then enforced, which created friction such that emerging organizations splintered apart or key members left. Alternatively, during early stages of venture development, performance may be mainly driven by the entrepreneurs' ability to get the product and technology right. Over time, the importance of developing a similar identity configuration may increase such that high variety in passion foci becomes problematic. Especially in the process of raising funding, the lack of a similar identity is extremely problematic, as this is one of the key things that investors evaluate when considering teams for potential investments (Huang and Knight, 2017). Although future work is needed to explore the mechanisms at play, our findings demonstrate that the functions of average team passion, passion intensity separation, and passion focus variety are distinct from one another and that they vary over time. Given the paucity of research on the impact of entrepreneurial passion within teams, whether in terms of collective team entrepreneurial passion, average team passion, or team passion diversity, these findings suggest that examining the distinct impacts of passion at different levels of analysis on outcomes in the short- and long-term is important. We encourage scholars to consider the most relevant time frames for the performance outcomes being studied and to consider incorporating more than one time-frame in their work.

Finally, our finding that passion diversity in terms of both intensity separation and focus variety negatively influence new venture performance contributes to the growing recognition that passion is not universally positive, but can be dysfunctional as well (Adomdza and Baron, 2013; de Mol et al., 2018; Ho and Pollack, 2014). Previous work has distinguished between obsessive passion and harmonious passion (e.g., Ho et al., 2011; Vallerand and Houlfort, 2003), suggesting that the differential effects of passion can be explained by distinguishing between functional and dysfunctional types of passion. Our research, however, suggests that at a team level dysfunctional outcomes can be explained even for functional types of passion by examining passion diversity among team members. Given that intensity separation and passion focus variety are properties of passion that only exist at a team level, our finding of their negative effects highlights a specific dysfunction of passion that uniquely occurs within the entrepreneurial team context.

6.2. Implications for the new venture team literature

Many firms are founded by teams instead of individuals. These firms have been argued to be more successful than those founded by solo entrepreneurs (Birley and Stockley, 2000; Kamm et al., 1990) in large part because team diversity in experience, ways of thinking, and social networks resulting from having multiple founders can provide greater knowledge, skills, and resources to the team and therefore increase firm performance. We followed the call of other scholars (Drnovsek et al., 2009; Saud Khan et al., 2014) to examine affective dynamics in entrepreneurial teams, and our theoretical development and findings in this regard are fairly counter-intuitive based on prior research. Literature on organizational teams suggests that the affective processes resident within teams impact their performance (e.g. Kelly and Barsade, 2001; Knight and Eisenkraft, 2015) such that positive affect operating between group members can significantly improve team processes and outcomes (Barsade et al., 2000; Walter and Bruch, 2008; Drnovsek et al., 2009).

Yet our findings suggest that overall positive affect in the form of average team passion has very little effect on team performance, and instead, diversity in positive affect can significantly undermine team performance. We argued that this occurs due to affective diversity leading to the team members needing to spend time and effort addressing interpersonal conflicts stemming from that diversity (De Wit et al., 2012). Less homogeneity in affective experiences within a team leads to more challenging interactions and communication processes (George, 1996), which may be even more problematic because the specific affective diversity of team passion diversity involves feelings that are substantially meaningful to the identity of the team members (Cardon et al., 2009; Ensley & Hmieleski, 2005). As such, team members are more likely to become entrenched in their perspectives in order to reinforce their identities, rather than to be open-minded in working through differences in perspectives.

This underscores a point made by scholars studying teams that is sometimes overlooked, that “with regard to future work, it is important to move beyond an investigation of mean levels and to examine indices based on variance and dispersion as well” (Kelly and Barsade, 2001; p. 113). Our study indicates that feelings of passion experienced by members of NVTs are not homogenous, and instead that both overall feelings of passion and the diversity in individual feelings of passion, are important aspects of understanding how the NVT functions and with what outcomes. Our results showing different relationships for average team passion and passion diversity suggest the need for other scholars to also move beyond examining average passion of entrepreneurs in teams to also include variety and dispersion in levels and focus of that passion. Otherwise their results may be spurious rather than robust. We specifically recommend following guidelines by others (e.g. Cole et al., 2011) to incorporate both mean and dispersion levels in future work on passion within entrepreneurial teams.

Moreover, we address the scarcity of literature on the “great deal of identity-driven activity taking place in NVTs during venture nascence” (Powell and Baker, 2017: p. 2407). Founders' identities are critical in shaping early organizing efforts of their ventures, yet we know very little about how such identities and the passion that is experienced for different identities influence team dynamics such as task and interpersonal conflict, as well as the resulting performance implications for the team and venture (Powell and Baker, 2017).

6.3. Practical implications

The results of our study have several important practical implications. First, our results empirically demonstrate the importance of affect and identity for new venture teams in terms of both the average level of passion experienced and the diversity of the intensity and focus of that passion among team members in addition to individual entrepreneurs. In this vein, our findings indicate that there is a dark side to team passion. While passion is generally positioned as a positive phenomenon, we advise entrepreneurs to consider the negative outcomes that passion can have in the team context. In particular, founders should consider passion intensity separation and passion focus variety when thinking about bringing new members on board. In addition, teams are encouraged to discuss passion in the operating agreement of the venture in some way, and to attend to mechanisms known to help alleviate or address interpersonal conflict within teams in productive ways (e.g. emotional intelligence training; Kaufmann and Wagner, 2017). Given that “founders are unlikely to be aware that differences in their social identities are an important source of differences in preferences or behavior” (Powell and Baker, 2014: p. 2402) due to the relatively hidden nature of personal identities compared to demographic characteristics (Fauchart and Gruber, 2011), explicit consideration of individual passions and passion diversity within the team may help bring such differences into the open so they can be discussed and addressed. Interestingly, our study demonstrates that while the impact of high variety in passion foci is not harmful during the early stages of venture performance, it is during the later stages of venture development. In the early days of the venture, team members are often focused on the short term goals of the venture, such as finding a first customer or getting brand exposure. During these first operational tasks and goals, individual differences are often less exposed. But over time, the lack of a consistent identity becomes more and more problematic as more impactful decisions are made and team members invest more time in the venture.

Finally, our paper has implications for the incubator and investor community. During the investment process, the majority of team assessment focuses on the human capital component only. Our results clearly show that this approach is short-sighted and that team passion significantly influences new venture team performance over the long run. More specifically, accelerator programs and start-up boot camps could learn from our study and design courses and personal growth sessions around the topic of team composition with an emphasis on passion diversity in teams. Especially for these young start-ups that enter these programs, insights and dedicated sessions about the impact of various passions and ambitions within the team would add value. Oftentimes these teams are not yet “complete”, and careful assessment of team average passion and passion diversity across the various domains could potentially improve the success rates of future hires and the team as a whole.

6.4. Limitations and future research directions

Despite these contributions, we acknowledge several limitations of our work. First, our data were collected in a very specific context, which raises questions of generalizability. We focused on early-stage ventures working within a venture accelerator program in the high technology sector of the Netherlands. Although this is an advantage considering that in many existing entrepreneurship studies, the results are affected by firm survival (Clarysse and Van Boxtael, 2015), nonetheless our results may not generalize to all entrepreneurial teams or firms. Existing work suggests that affect and passion are universally important across a wide area of industries, including hospitality, leisure, nursing, sports, education and tourism (e.g., Ho et al., 2011; Carbonneau et al., 2008; Vallerand et al., 2003), yet the majority of these studies focused on passion at the individual rather than team level of analysis. We do not know why the commonly found positive relationship between the level of passion and performance was not present in our data. Perhaps the high negative correlation between the average team passion level and passion diversity level (-0.45) within our data is robust to other team passion contexts, but there is no existing literature to support or refute such generalizability. We suggest that the effects of average team passion, as well as team passion diversity for both intensity separation and focus variety may differ in other contexts. In particular, we do not know what the effects of passion diversity on performance would be for teams that are much larger, are at a later stage of team development or of the firm's life cycle, non-technology based teams, or for teams where sub-groups existed such as faultlines (Qu & Liu, 2017). Our teams were fairly small (average of 2–3 members) and extremely focused on improving their ideas and growing their firms in a concentrated accelerator setting. Given the very limited accumulated empirical knowledge concerning entrepreneurial passion at either the collective level (e.g. Santos and Cardon, 2019) or individual diversity level within teams examined in this paper, we encourage future empirical research that explores passion diversity among new venture teams of different sizes and outside of an accelerator context. Moreover, we encourage future replication attempts of our study with larger samples to allow for bigger effect sizes that may confirm our findings (Anderson et al., 2019).

A second limitation is that while we did collect performance data at two points in time, we cannot draw strong inferences about the causality of effects. There could be many factors that might affect a venture team over five years, including the team members themselves, such as if new members are added or existing members leave (Cardon et al., 2017a, 2017b), as well as external factors such as the market, economy, or product feature novelty. We, therefore, call upon future research to take a critical look at the causal directionality implied in our model, for example by adopting an experimental or a cross-lagged panel design, and to account for team member entries and exits, as well as other factors, that may occur during the period of study.

A third limitation is that we focused on one type of diversity at the expense of others, such as demographic diversity. In addition, we considered only affective diversity rather than also incorporating group emotional norms (e.g. Kelly and Barsade, 2001) or shared team passion (Cardon et al., 2017a, 2017b; Santos and Cardon, 2019), which can also impact individual emotions and behavior in teams, as well as team performance. Team identification can counteract negative effects of diversity on conflict (Van Der Vegt and Bunderson, 2005; Foo, 2011), and team entrepreneurial passion (shared emotions for a collective team identity) could also potentially mitigate the negative impact of passion diversity within NVTs (Cardon et al., 2017a, 2017b). Future empirical studies should determine whether team identification or team passion can moderate the negative relationships we saw in our results.

Finally, while our focus on affective diversity provided insights to new venture team performance, affect scholars also note that non-affective factors play an important role in explaining group behavior and should be integrated into models that explain affective processes (Kelly and Barsade, 2001). In our study, the relatively low r^2 values indicate that several factors other than average team passion and team passion diversity influence team performance, in addition to the controls we incorporated. In building on our findings, future work could examine different aspects of passion among teams (TEP, average team passion, team passion diversity) alongside other non-affective factors that may impact team performance in the short- and long-term. For example, the role of experience in entrepreneurial teams, conceptualized as the educational level, specialization, and functional background of team members (Amason et al., 2006), as well as prior company affiliation (Beckman, 2006) and educational prestige (Lester et al., 2006) has been consistently shown as important in new venture team models (Klotz et al., 2014). Work experience might have positive effects due to increasing cognitive resources such as knowledge and skills, providing mental schemas for interpreting and storing new information (Jin et al., 2017). Yet, greater levels of human capital can also lead to negative things such as functional fixedness, cognitive entrenchment, and stereotyped thinking (Martins et al., 2013; Teece et al., 1996).³ Given our findings of negative impacts of affective diversity, as well as prior research that shows that affective diversity brings about feelings of discomfort and uncertainty among team members (Barsade et al., 2000; Harrison et al., 2002) and identity conflict can lead to distrust and in-group out-group disagreements, we might predict a particularly negative interaction between passion diversity and work experience for entrepreneurial teams. We encourage future research that examines the interplay of team passion diversity and non-affective factors such as human capital.

6.5. Concluding remarks

Feelings of passion within new venture teams have important implications for the functioning and performance of those teams. Whereas higher average levels of passion among team members had little effect, disparity in the extent to which team members feel passion and for what domain appears to be detrimental to team performance. Our results echo the literature that passion can be both helpful and harmful to organizational functioning, and extend that literature to show such contradictory effects in the context of new

³ We thank an anonymous reviewer for insights on these complexities.

venture teams. However, we have just touched the surface of how entrepreneurial passion might operate within new venture teams, and we encourage additional work in this area.

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